

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-33. (cancelled)

34. (currently amended) A colloid solution of metal particles or metal compound particles used in an integrity test for a virus removal membrane comprising: at least

(1) metal particles or metal compound particles having an average particle diameter of ~~1-100~~ 15-40 nm,

(2) a water-soluble high molecular weight dispersant containing ~~an N~~ a pyrrolidone group, ~~and~~

(3) water ~~and/or a water soluble organic solvent~~, and

(4) an anionic surfactant and/or a chelating agent,

wherein

the metal particles or metal compound particles are formed from one metal, and

the colloid solution has ~~having~~ the following properties (a) and (b):

(a) ~~exhibiting a change in the~~ a maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after ~~being stored at room temperature for~~ after 180 days storage at room temperature and at a constant pH in a range from pH4 to pH11

which differs from the maximum absorption wavelength prior to storage by -2.0 nm to +2.0 nm, and

~~(b) exhibiting a change in the a~~ a ~~maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored after one year storage at 50°C for one year and at pH5 which differs from the maximum absorption wavelength prior to storage by -2.0 nm to +2.0 nm.~~

35. (currently amended) ~~[[A]]~~ The ~~colloid solution of metal particles or metal compound particles according to claim 34, comprising wherein,~~

~~(1) the metal particles or metal compound particles having an average particle diameter of 15-40 nm, and the~~ have a ~~percent of variation in the particle diameter distribution of 30% or less, and~~

the colloid solution achieves a colloid recovery rate of 70% or more when the colloid solution is filtered through a collection test porous membrane and satisfies the following conditions:

(average pore diameter (nm) of the collection test porous membrane) - (average particle diameter (nm) of colloid) > 10 nm.

~~(2) a water-soluble high molecular-weight-dispersant containing an N-group,~~

~~(3) water and/or a water-soluble organic solvent,  
further~~

~~(4) a surfactant and/or a chelating agent~~

~~and having the following properties (a), (b) and (c):~~

~~(a) exhibiting a change in the maximum absorption  
wavelength in the range from -2.0 nm to +2.0 nm before and after  
being stored at room temperature for 180 days at a constant pH in  
a range from pH4 to pH11,~~

~~(b) exhibiting a change in the maximum absorption  
wavelength in the range from -2.0 nm to +2.0 nm before and after  
being stored at 50°C for one year at pH5, and~~

~~(c) in the colloid solution achieving a colloid  
recovery rate of 70% or more when the colloid solution is  
filtered through a collection test porous membrane and satisfying  
the following conditions:~~

~~(average pore diameter (nm) of the collection test  
porous membrane) — (average particle diameter (nm) of colloid) →  
10 nm.~~

36. (currently amended) [[A]] The method for producing  
a colloid solution used in an integrity test according to claim  
34, comprising: ~~of metal particles or metal compound particles,  
in which the colloid solution comprise at least~~

~~(1) metal particles or metal compound particles having  
an average particle diameter of 1-100 nm,~~

(2) adding a water-soluble high molecular weight dispersant containing ~~an N~~ a pyrrolidone group to the colloid solution, and

further adding an anionic surfactant and/or a chelating agent.

~~(3) water and/or a water soluble organic solvent, and has the following properties (a) and (b):~~

~~(a) exhibiting a change in the maximum absorption wavelength in the range from 2.0 nm to 12.0 nm before and after being stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11 and~~

~~(b) exhibiting a change in the maximum absorption wavelength in the range from 2.0 nm to 12.0 nm before and after being stored at 50°C for one year at pH5,~~

~~characterized in that the method comprises adding a surfactant and/or a chelating agent after adding a water soluble high molecular weight dispersant containing an N group to the colloid solution of metal particles or metal compound particles.~~

37. (cancelled)

38. (currently amended) The method for producing a colloid solution according to claim 36, further comprising:

dissolving a metal compound in a solvent, causing the metal particles to form by reducing the metal compound,

then adding a water-soluble high molecular weight dispersant containing ~~an~~ N a pyrrolidone group, and

further adding ~~[[a]]~~ an anionic surfactant and/or a chelating agent.

39-53. (cancelled)

54. (currently amended) An integrity test method of a virus removal membrane for confirming the removability performance of the virus removal membrane comprising:

~~causing a colloid solution of metal particles or metal compound particles to be filtered~~

washing a virus removal membrane after use of the membrane for virus removal,

filtering the colloid solution according to claim 34  
through the virus removal membrane which was used for virus removal, the colloid solution having a known absorbance at a maximum absorption wavelength,

measuring the absorbance of colloid solution at the maximum absorption wavelength after filtration, and

determining removability performance of the virus removal membrane based on the ratio of absorbance of the colloid solution measured before and after filtration.

~~in which the colloid solution contains at least~~

~~(1) metal particles or metal compound particles having an average particle diameter of 1-100 nm,~~

~~(2) a water soluble high molecular weight dispersant containing an N-group, and~~

~~(3) water and/or a water soluble organic solvent, and has the following properties (a) and (b):~~

~~(a) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at room temperature for 180 days at a constant pH in a range from pH4 to pH11 and~~

~~(b) exhibiting a change in the maximum absorption wavelength in the range from -2.0 nm to +2.0 nm before and after being stored at 50°C for one year at pH5.~~

55. (currently amended) [[An]] The integrity test method according to claim 54, wherein the virus removal membrane is a porous cellulose membrane. ~~of a virus removal membrane comprising~~

~~causing a colloid solution of metal particles or metal compound particles with an average particle diameter of 1 to 100 nm~~

~~to be filtered through the virus removal membrane which is a cellulose-type porous membrane and has been used for virus removal,~~

~~in which the colloid solution contains at least~~

~~(1) a water-soluble high molecular weight dispersant containing an N-group, and~~

~~(2) a surfactant, or a surfactant and a chelating agent as effective components.~~

56. (currently amended) [[An]] The integrity test method according to claim 54, wherein the virus removal membrane is a porous, thermoplastic synthetic polymer-membrane of which the surface is hydrophilized. ~~of a virus removal membrane comprising~~

~~causing a colloid solution of metal particles or metal compound particles with an average particle diameter of 1 to 100 nm~~

~~to be filtered through the virus removal membrane which is a synthetic polymer porous membrane comprising a thermoplastic polymer of which the surface is hydrophilized and used for virus removal,~~

~~in which the colloid solution contains at least~~

~~(1) a water-soluble high molecular weight dispersant containing an N-group, and~~

~~(2) a chelating agent~~

~~as effective components, provided that the colloid solution does not contain a surfactant.~~

57. (previously presented) The integrity test method according to claim 56, wherein the thermoplastic polymer is polyvinylidene fluoride or polyether sulfone.

58. (previously presented) The integrity test method according to claim 54, achieving a colloid recovery rate of 70% or more when the colloid solution is filtered through a collection test porous membrane made of the same material as the virus removal membrane and satisfying the following conditions:

(average pore diameter (nm) of the collection test porous membrane) - (average particle diameter (nm) of colloid) > 10 nm.

59. (currently amended) The integrity test method according to claim 54, wherein the one metal ~~particles comprise~~ at least one is selected from the group consisting of gold, silver, platinum, rhodium, palladium, ruthenium, iridium, osmium, iron, and copper.

60. (previously presented) The integrity test method according to claim 54, wherein

the average particle diameter of metal particles or metal compound particles is 15 to 40 nm and the percent of variation in the particle diameter distribution is 30% or less.



61. (currently amended) The integrity test method according to claim 54, wherein the water-soluble high molecular weight dispersant containing the [[N]]pyrrolidone group is poly(vinylpyrrolidone) or a poly(vinylpyrrolidone) copolymer.

62. (previously presented) The integrity test method according to claim 55, wherein the surfactant is dodecylsulfuric acid or its salt.

63. (previously presented) The integrity test method according to claim 55, wherein the chelating agent comprises at least one of tripolyphosphoric acid, polyacrylic acid, polyacrylic acid copolymer, ethylenediaminetetraacetic acid, and salts thereof.

64. (new) The integrity test method according to claim 54, wherein the colloid solution is filtered after the membrane is washed using an alkali solution, but is not neutralized with an acid.